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Engagement of CD28 modulates CXC chemokine receptor 4 surface expression in both  
and CD3-stimulated CD4+ T cells.  
J Immunol. 2000 Apr 15;164(8):4018-24.  
PMID: 10754293; UI: 20219234
- ☐ 2: [Riley JL, Levine BL, Craighead N, Francomano T, Kim D, Carroll RG, June CH.](#) [Relate](#)  
Naive and memory CD4 T cells differ in their susceptibilities to human immunodeficient  
type 1 infection following CD28 costimulation: implications for transmission and pathogenesis.  
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- ☒ 3: [Carroll RG, Riley JL, Levine BL, Feng Y, Kaushal S, Ritchey DW, Bernstein W, Weislow OS,  
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Differential regulation of HIV-1 fusion cofactor expression by CD28 costimulation of T  
cells.  
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- ☐ 4: [Brice GT, Mayne AE, Villinger F, Ansari AA.](#) [Relate](#)  
A novel role for tumor necrosis factor-alpha in regulating susceptibility of activated CD4+  
cells from human and nonhuman primates for distinct coreceptor using lentiviruses.  
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costimulatory molecule.  
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- ☐ 6: [Juffermans NP, Verbon A, Olszyna DP, van Deventer SJ, Speelman P, van Der Poll T.](#) [Relate](#)  
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and CCR5) on CD4+ T cells in humans.  
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- ☐ 7: [Creson JR, Lin AA, Li Q, Broad DF, Roberts MR, Anderson SJ.](#) [Relate](#)

The model duration of anti-CD28 costimulation determine resistance to infection by macrophage-tropic strains of human immunodeficiency virus type 1 in vitro.

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- ☒ 8: Carroll RG, Riley JL, Levine BL, Blair PJ, St Louis DC, June CH. Relate  
The role of co-stimulation in regulation of chemokine receptor expression and HIV-1 i  
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Semin Immunol. 1998 Jun;10(3):195-202. Review.  
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- ☐ 9: Moriuchi H, Moriuchi M, Fauci AS. Relate  
Cloning and analysis of the promoter region of CCR5, a coreceptor for HIV-1 entry.  
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- ☐ 10: Garzino-Demo A, DeVico AL, Gallo RC. Relate  
Chemokine receptors and chemokines in HIV infection.  
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- ☒ 11: Landay AL, Patterson B, Andersson J. Relate  
Cytokine modulation of HIV-1 chemokine receptor expression.  
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Interference with the signaling capacity of CC chemokine receptor 5 can compromise i  
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- ☒ 13: Riley JL, Carroll RG, Levine BL, Bernstein W, St Louis DC, Weislow OS, June CH. Relate  
Intrinsic resistance to T cell infection with HIV type 1 induced by CD28 costimulation.  
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- ☒ 14: Carlesimo M, Pontesilli O, Varani AR, Bernardi ML, Mazzone AM, Rosso R, Guerra EC, Cassone A, Paganelli R, Aiuti F. Relate  
CD28 costimulation and T lymphocyte proliferative responses in HIV-1 infection.  
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- ☒ 15: Levine BL, Mosca JD, Riley JL, Carroll RG, Vahey MT, Jagodzinski LL, Wagner KF, Mayers DL, Burke DS, Weislow OS, St Louis DC, June CH. Relate  
Antiviral effect and ex vivo CD4+ T cell proliferation in HIV-positive patients as a res  
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## GeneCard for CXCR4

HUGO gene nomenclature committee  
**CXCR4 (chemokine (C-X-C motif),  
 receptor 4 (fusin))**

[[Back to GeneCards  
 Homepage](#)]

### Synonyms (according to [GDB](#))

- NPY3R
- chemokine (C-X-C motif), receptor 4 (fusin)
- D2S201E
- HM89
- NPYR
- LESTR
- NPYY3R
- HSY3RR
- fusin
- NPYY3
- neuropeptide Y receptor Y3

### CXCR4 in other gene-based resources

[GDB ID: 230002](#)    [LocusLink ID: 7852](#)    [euGene ID: HUgn7852](#)

### Chromosomal location: (according to [OMIM](#) or [LocusLink](#), and/or [UDB](#))

*chromosome: 2*    *OMIM cytogenetic band: 2q21*

*Unified DataBase coordinate (from pter): 158.8 ± 1.4 Mb*

### Proteins: (according to [SWISS-PROT](#), [MIPS](#), and [BLOCKS](#))

**CCR4\_HUMAN:** c-x-c chemokine receptor type 4 (cxcr-r4) (cxcr-4) (sdf-1 receptor)(stromal cell-derived factor 1 receptor) (fusin) (leukocyte-derived seven transmembrane domain receptor) (lestr) (lcr1) (fb22) (npyl)(hm89). --*gene: cxcr4*. [352 amino acids; 39 kd]

- **function:** receptor for the c-x-c chemokine sdf-1. transduces a signal by increasing the intracellular calcium ions level. acts as a co-receptor with cd4 for syncytium-inducing strains (si) (t- cell-line-adapted) of hiv-1 virus. it promotes env-mediated fusion of the virus.
- **subcellular location:** integral membrane protein.
- **similarity:** belongs to family 1 of g-protein coupled receptors.
- **caution:** was originally thought to be a receptor for neuropeptide y, type 3 (npy3-r).
- **MIPS Pedant Viewer:** [67669](#) [67668](#) [67670](#) [67671](#)
- **Blocks protein family:** [BL00237](#) G-protein coupled receptors proteins.

### Sequences (GenBank/EMBL/DDBJ accessions according to [Unigene](#) or [GenBank](#), RefSeq according to [LocusLink](#), assembly according to [MIPS](#) and/or [DOTS](#) and/or [UCSC](#))

**Unigene Cluster for CXCR4:** ( Build 126; Nov 14 2000 )  
 chemokine (C-X-C motif), receptor 4 (fusin)  
[Hs.89414](#) [show with all **ESTs**]

**Unigene Representative Sequence:** [AF147204](#)

**REFSEQ mRNAs:** [NM\\_003467](#)

**MIPS assembly:**  
[H54913S2](#) [H54913S1](#) [H54913S3](#) [H54913S4](#)

**DOTS assembly:** [157119](#)

**UCSC draft assembly:** [AF147204](#)

**Additional Gene/cDNA sequence:**

[F005058](#) [AF025375](#) [AF052572](#) [AF147204](#) [AJ12869](#)  
[U10924](#) [L01639](#) [L06797](#) [M99293](#) [X71635](#)  
[Y14739](#)

### Similar genes in other organisms:

(according to [MGD](#) Nov 13 2000)

### Mammalian homologues:

	<i>gene</i>	<i>locus</i>	<i>description</i>	<i>Genbank accessions</i>
mouse	<a href="#">Cmkar4</a>	<a href="#">1 (67.40 cM)</a>	chemokine (C-X-C) receptor 4	<a href="#">AB000803</a> <a href="#">D87747</a> <a href="#">U59760</a> <a href="#">U65580</a> <a href="#">X99581</a> <a href="#">X99582</a> <a href="#">Z80111</a> <a href="#">Z80112</a>

### Disorders & Mutations

(in which this gene is involved, according to [OMIM](#), [SWISS-PROT](#), [Genatlas](#), [HGMD](#), [TGDB](#), and/or [BCGD](#))

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### Medical News

(possibly related articles in [Doctor's Guide](#))

- [Small Molecule Blocks Cell-Surface Receptor Needed For HIV-1 Infection](#)
- [Scientists Find New Way To Help Blood Cells Fight HIV Infection](#)
- [Scientists Find Way To Short-Circuit Initial HIV Invasion](#)
- [STDs, Elevated Progesterone Raise HIV Infection Risk For Women](#)
- [Specifically Targeting HIV-Infected Cells: A New Gene-Therapy Approach](#)
- [Trojan Horse Virus Controls HIV Infection](#)

### Research Articles:

(in [PubMed](#))

- [Genomic organization and promoter characterization of human \*\*CXCR4\*\* gene.](#)

Search PubMed for CXCR4

to find abstracts of **research articles** containing this gene name

### Additional Sources of Information on the web

#### *name*

#### [Genatlas](#) biochemistry entry for CXCR4:

fusin, chemokine (CXC) motif, receptor 4, preferentially expressed on the more immature CD34+ hematopoietic stem cells, G protein coupled receptor superfamily, required for entry of T cell line-tropic strains HIV-1 into CD4 cells, bovine locus coeruleus homolog

#### [Search RZPD](#) for clones of CXCR4

Search the web for CXCR4

#### *description*

Links to **sequences**, **linkage data**, **maps**, and **papers**

Clone collection at the German Human Genome Project, Resource Center

search millions of **Web pages** with **Excite** to find articles, personal homepages, conferences, discussions, and other web sites related to **CXCR4!**